

ORIGINAL UNITED STATES PATENT APPLICATION

REFERENCES CITED

U. S. Patents:

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|-----------|-----------------|--|
| 6,325,025 | Perrone | Soot-blowing optimization system |
| 6,278,051 | Peabody | Differential thermopile heat flux transducer |
| 5,990,412 | Terrell | Differential thermopile heat flux transducer formed by depositing
metals and non-metals from liquids onto a substrate |
| 5,360,051 | Takahashi et al | Continuous casting method and apparatus for implementing same
method |
| 5,314,247 | Liebert et al | Dual active surface, miniature, plug-type heat flux gauge |
| 5,086,204 | Liebert et al | Method of producing a plug-type heat flux gauge |
| 5,048,973 | Liebert et al | Plug-type heat flux gauge |
| 4,779,994 | Diller et al | Heat flux gage |
| 4,567,365 | Degenne | Sensor of energy flux, in particular heat flux and visible and
infrared radiation |

ABSTRACT

A sensor designed for measurement of conducted heat flux passing through a solid object consists of a thin film thermopile deposited on a planar substrate whose thermal properties match those of the solid object. The thermopile is protected by a thin rectangular plate made of the same material as the substrate. The sensor is imbedded in the solid object and measures the vector of heat flux along the thermopile axis with minimal distortion of the heat flow pattern. Applications include measurement of heat flux in casting molds, boiler tubes, well surveying instruments and laser weapons testing.